

Having described the invention, the following is claimed:

1. An apparatus comprising an outer housing, a switch assembly which is at least partially disposed in said outer housing, said switch assembly includes a switch housing having a switch housing locating surface which engages a first locating surface on said outer housing to position said switch assembly relative to said outer housing, said switch assembly includes a plurality of switch terminals which extend from said switch housing, a connector terminal mounting block which is at least partially disposed in said outer housing, said connector terminal mounting block having a connector terminal mounting block locating surface which engages a second locating surface on said outer housing to position said connector terminal block relative to said outer housing, and a plurality of connector terminals which are at least partially disposed in said connector terminal mounting block, each of said connector terminals having a first end portion which engages one of said switch terminals and a second end portion which is connectable with an electrical conductor.

2. An apparatus as set forth in claim 1 wherein said outer housing includes a plurality of side walls which extend between opposite ends of said outer housing, said first locating surface on said outer housing being at least partially disposed on an end of one of said side walls of said outer housing,

said second locating surface on said outer housing being at least partially disposed on an end of one of said side walls of said outer housing.

3. An apparatus as set forth in claim 2 further including first and second openings formed in said side walls of said outer housing, said switch housing having a switch housing retainer which snaps into the first opening in said side walls of said outer housing, said connector terminal mounting block having a connector terminal mounting block retainer which snaps into the second opening in said side walls of said outer housing.

4. An apparatus as set forth in claim 1 wherein said switch assembly includes a base, a plurality of stationary switch contacts, and a plurality of movable switch contacts connected with said base, said switch terminals being connected with said base, and a light module housing which at least partially encloses said movable switch contacts, said light module housing having a first light module housing retainer which snaps into an opening in said base to interconnect said light module housing and said base, said light module housing having a second light module housing retainer which snaps into an opening in said switch housing to interconnect said light module housing and said switch housing, and a plurality of light sources connected with and at least partially enclosed by said light module housing.

5. An apparatus as set forth in claim 4 wherein said switch assembly further includes a push button which is movable relative to said light module

housing and said base to move said movable switch contacts relative to said fixed switch contacts and said base, said movable switch contacts being disposed between said base and said push button.

6. An apparatus as set forth in claim 1 wherein said switch assembly includes a base which is connected with and is at least partially enclosed by said switch housing, a plurality of movable and stationary switch contacts disposed in said switch housing, said stationary switch contacts being connected with said base and said switch terminals, said movable switch contacts being movable relative to said base and being connected with said switch terminals, an actuator link connected with said movable switch contacts, and a push button connected with said actuator link, said push button being movable relative to said base to move said actuator link and said movable switch contacts relative to said base and said stationary switch contacts, said movable switch contacts and said actuator link being disposed between said base and said push button, said base being disposed between said connector terminal mounting block and said push button.

7. An apparatus as set forth in claim 1 wherein said switch housing includes a rim which extends around said switch housing, said switch housing locating surface being disposed on said rim of said switch housing, said connector terminal mounting block includes a rim which extends around said connector terminal mounting block, said connector terminal mounting block

housing locating surface being disposed on said rim of said connector terminal block.

8. An apparatus as set forth in claim 1 wherein said switch assembly includes a plurality of stationary switch contacts and a plurality of movable switch contacts, and an alternate action mechanism which is operable to maintain said movable switch contacts in an actuated condition in response to a first manual actuation of said push button and to release said movable switch contacts in response to a second manual actuation of said push button, said alternate action mechanism being at least partially disposed in an opening formed in said connector terminal mounting block.

9. An apparatus as set forth in claim 8 wherein said connector terminal mounting block includes a first section which is fixedly connected with a second section of said connector terminal mounting block, said alternate action mechanism extends through an opening in said first section of said connector terminal mounting block into a recess in said second section of said connector terminal mounting block.

10. An apparatus as set forth in claim 9 wherein said second section of said connector terminal mounting block includes a plurality of openings which extend through said second section of said connector terminal mounting block, each of said openings in said second section of said connector terminal mounting block contains a locating surface disposed

between first and second sides of said second section of said connector terminal mounting block, each of said connector terminals being at least partially disposed in one of said openings in said second section of said connector terminal mounting block and being disposed in engagement with a locating surface disposed in said one of said openings in said connector terminal mounting block, said first section of said connector terminal mounting block includes a plurality of openings which extend through said first section of said connector terminal mounting block, said first section of said connector terminal mounting block includes a plurality of collars each of which extends around an entrance to one of said openings in said first section of said connector terminal mounting block and extends into one of said openings in said second section of said connector terminal mounting block, each of said connector terminals extends through one of said collars into said first section of said connector terminal mounting block.

11. An apparatus as set forth in claim 1 wherein said switch assembly includes a base, a plurality of stationary switch contacts connected with said base, a plurality of movable switch contacts connected with said base, an actuator link connected with said movable switch contacts, a plurality of light sources, and a plurality of conductors which extend through said actuator link and are connected with said light sources, said actuator link being movable

relative to said conductors to move said movable switch contacts relative to said stationary switch contacts.

12. An apparatus as set forth in claim 11 wherein each of said conductors is connected with one of said switch terminals.

13. An apparatus is set forth in claim 11 wherein each of said conductors is integrally formed as one piece with one of said switch terminals.

14. An apparatus as set forth in claim 1 wherein said switch assembly includes a plurality of stationary switch contacts and a plurality of movable switch contacts, said plurality of movable and stationary switch contacts includes first and second stationary switch contacts and a first movable switch contact which is movable between said first stationary switch contact and said second stationary switch contact, a conductor connected with said first stationary switch contact and a first switch terminal of said plurality of switch terminals, and a body of insulating material disposed in engagement with said second stationary switch contact and with at least one of said conductor and said first switch terminal to enable said second stationary switch contact to be disposed close to at least one of said conductor and first switch terminal.

15. An apparatus as set forth in claim 1 wherein said switch assembly includes a plurality of stationary switch contacts, a plurality of movable switch contacts which are movable relative to said stationary switch contacts, a light module housing having first and second portions, said movable switch

contacts being at least partially enclosed by said first portion of said light module housing, a plurality of light sources disposed in said second portion of said light module housing, and a push button connected with said movable switch contacts, said push button being at least partially illuminated by light from said light sources upon energization of said light sources.

16. An apparatus as set forth in claim 15 wherein said switch assembly includes a base from which said switch terminals extend in a direction away from said push button, said light module housing having a retainer which snaps into an opening in said base to interconnect said light module housing and said base.

17. An apparatus as set forth in claim 15 further including an actuator link which is at least partially enclosed by said first portion of said light module housing and is connected with said push button, and a plurality of conductors which extend through openings in said actuator link and are connected with said light sources.

18. An apparatus as set forth in claim 17 wherein each of said conductors is integrally formed as one piece with one of said switch terminals.

19. An apparatus comprising a switch housing, a base which is at least partially enclosed by and is connected with said switch housing, a plurality of switch terminals which are connected with said base, a plurality of stationary and movable switch contacts connected with said switch terminals,

a light module housing which is at least partially enclosed by said switch housing, said light module housing having a first portion in which said movable switch contacts are at least partially disposed, said light module housing having a second portion, a plurality of light sources are disposed in said second portion of said light module housing, and a push button which is at least partially enclosed by said switch housing and is disposed adjacent to said second portion of said light module housing, said push button being connected with said movable switch contacts, said push button being at least partially illuminated by light from said light sources upon energization of said light sources.

20. An apparatus as set forth in claim 19 further including an outer housing which at least partially encloses said switch housing and said plurality of switch terminals, said switch housing having a switch housing locating surface which engages a first locating surface on said outer housing to position said switch housing relative to said outer housing, a connector terminal block which is at least partially enclosed by said outer housing, said connector terminal block having a connector terminal block locating surface which engages a second locating surface on said outer housing to position said connector terminal block relative to said outer housing, and a plurality of connector terminals which are at least partially disposed in said connector terminal block, each of said connector terminals having an inner end portion

which engages one of said switch terminals and a second end portion which is connectable with an electrical conductor.

21. An apparatus as set forth in claim 20 further including first and second openings formed in said outer housing, said switch housing having a switch housing retainer which snaps into the first opening in said outer housing, said connector terminal block having a connector terminal block retainer which snaps into the second opening in said outer housing.

22. An apparatus as set forth in claim 21 wherein said outer housing includes a first mounting flange which is integrally formed as one piece with said outer housing and a second mounting flange which is integrally formed as one piece with said outer housing.

23. An apparatus as set forth in claim 19 wherein said stationary and movable switch contacts include first and second spaced apart stationary switch contacts and a movable switch contact which is disposed between said first and second stationary switch contacts, a conductor connected with said first stationary switch contact, a body of insulating material disposed in engagement with said conductor, said second stationary switch contact being disposed in engagement with said body of insulating material.

24. An apparatus as set forth in claim 19 further including an actuator link which is connected with said push button and said movable switch contacts, said actuator link being at least partially disposed in said first

portion of said light module housing, and a plurality of conductors which extend through said actuator link and are connected with said light sources, said actuator link being movable to move said movable switch contacts relative to said stationary switch contacts upon movement of said push button relative to said switch housing.

25. An apparatus as set forth in claim 24 wherein each of said conductors is integrally formed as one piece with one of said switch terminals.

26. An apparatus as set forth in claim 19 wherein said light module housing includes a first retainer which engages an opening in said base to interconnect said base and said light module housing, said light module housing having a second retainer which engages an opening in said switch housing to interconnect said switch housing and said light module housing.

27. An apparatus as set forth in claim 19 wherein said push button extends around and at least partially encloses at least a portion of said light module housing.

28. An apparatus as set forth in claim 19 wherein said second portion of said light module housing is divided into first and second sections by a wall which blocks transmission of light between said first and second sections of said second portion of said light module housing, a first group of said light sources of said plurality of light sources being disposed in said first section of said second portion of said light module housing, a second group of said light

sources of said plurality of light sources being disposed in said second section of said second portion of said light module housing.

29. An apparatus as set forth in claim 19 wherein said light module housing includes a panel which separates said first portion from said second portion of said light module housing, said light sources being disposed adjacent to a side of said panel which faces toward said push button.

30. An apparatus as set forth in claim 19 further including a printed circuit board having an opening, and a projection extending from said base into the opening in said printed circuit board, said projection being engagable with a discontinuity in said opening in said printed circuit board to orient said switch housing and said push button relative to said printed circuit board.

31. An apparatus as set forth in claim 30 further including an alternate action mechanism connected with said push button and said movable switch contacts, said alternate action mechanism being operable to maintain said movable switch contacts in an actuated condition in response to a first manual actuation of said push button and to release said movable switch contacts in response to a second manual actuation of said push button, said alternate action mechanism being at least partially disposed in said projection.

32. An apparatus as set forth in claim 30 wherein said printed circuit board includes an array of sockets adjacent to the opening in said printed

circuit board, each of said terminals of said plurality of terminals extends into one of said sockets in said array of sockets.

33. An apparatus comprising a switch housing, a base which is at least partially enclosed by and is connected with said switch housing, a plurality of switch terminals which are connected with said base, a plurality of movable and stationary switch contacts connected with said switch terminals and at least partially enclosed by said switch housing, said plurality of movable and stationary switch contacts includes first and second stationary switch contacts which are spaced apart and a first movable switch contact which is movable between said first stationary switch contact and said second stationary switch contact, a conductor connected with said first stationary switch contact and a first switch terminal of said plurality of switch terminals, and a body of insulating material disposed in engagement with said second stationary switch contact and with at least one of said conductor and first switch terminal to enable said second stationary switch contact to be disposed close to said one of said conductor and first switch terminal.

34. An apparatus as set forth in claim 33 wherein said body of insulating material at least partially covers said conductor and at least partially covers said first switch terminal.

35. An apparatus as set forth in claim 33 wherein said second stationary switch contact is aligned with and is spaced from an end portion of

said first switch terminal, said body of insulating material fills the space between the second stationary switch contact and the end portion of said first switch terminal.

36. An apparatus as set forth in claim 33 wherein said conductor is connected with an end portion of said first switch terminal, said body of insulating material engages both said end portion of said first switch terminal and said conductor, said body of insulating material fills a space between said second stationary switch contact and both said end portion of said first switch terminal and said conductor.

37. An apparatus as set forth in claim 33 further including an outer housing, said switch housing being at least partially disposed in said outer housing, said switch housing having a switch housing locating surface which engages a first locating surface on said outer housing to position said switch housing relative to said outer housing, a connector terminal mounting block which is at least partially disposed in said outer housing, said connector terminal block having a connector terminal locating surface which engages a locating surface on said outer housing to position said connector terminal block relative to said outer housing, and a plurality of connector terminals which are at least partially disposed in said connector terminal block, each of said connector terminals having an inner end portion which telescopically

engages one of said switch terminals and a second end portion which is connectable with an electrical conductor.

38. An apparatus as set forth in claim 37 wherein said outer housing includes a plurality of side walls which extend between opposite ends of said outer housing, said first locating surface on said outer housing being at least partially disposed on an end of one of said side walls of said outer housing, said second locating surface on said outer housing being at least partially disposed on an end of one of said side walls of said outer housing.

39. An apparatus as set forth in claim 38 further including first and second openings formed in said side walls of said outer housing, said switch housing having a switch housing retainer which snaps into the first opening in said side walls of said outer housing, said connector terminal mounting block having a connector terminal mounting block retainer which snaps into the second opening in said side walls of said outer housing.

40. An apparatus as set forth in claim 37 further including a light module housing which at least partially encloses said movable switch contacts, said light module housing having a first light module housing retainer which snaps into an opening in said base to interconnect said light module housing and said base, said light module housing having a second light module housing retainer which snaps into an opening in said switch

housing to interconnect said light module housing and said switch housing, and a plurality of light sources disposed in said light module housing.

41. An apparatus as set forth in claim 40 wherein said switch assembly further includes a push button which is movable relative to said light module housing and said base to move said movable switch contacts relative to said fixed switch contacts and said base, said movable switch contacts being disposed between said base and said push button.

42. An apparatus as set forth in claim 37 wherein said switch housing includes a rim which extends around said switch housing, said switch housing locating surface being disposed on said rim of said switch housing, said connector terminal mounting block includes a rim which extends around said connector terminal mounting block, said connector terminal mounting block housing locating surface being disposed on said rim of said connector terminal block.

43. An apparatus as set forth in claim 33 further including a light module housing which is at least partially enclosed by said switch housing said light module housing having a first portion in which said movable switch contacts are at least partially disposed, said light module housing having a second portion, a plurality of light sources disposed in said second portion of said light module housing, and a push button which is at least partially enclosed by said switch housing and is disposed adjacent to said second

portion of said light module housing, said push button being connected with said movable switch contacts, said push button being at least partially illuminated by light from said light sources upon energization of said light sources.

44. An apparatus as set forth in claim 43 further including an actuator link which is connected with said push button and said movable switch contacts, said actuator link being at least partially disposed in said first portion of said light module housing, and a plurality of conductors which extend through said actuator link and are connected with said light sources, said actuator link being movable relative to said conductors which extend through said actuator link to move said movable switch contacts relative to said stationary switch contacts upon movement of said push button relative to said switch housing.

45. An apparatus as set forth in claim 44 wherein each of said conductors which extends through said actuator link is integrally formed as one piece with one of said switch terminals.

46. An apparatus as set forth in claim 43 wherein said light module housing includes a first retainer which engages an opening in said base to interconnect said base and said light module housing, said light module housing having a second retainer which engages an opening in said switch housing to interconnect said switch housing and said light module housing.

47. An apparatus as set forth in claim 43 wherein said push button extends around and at least partially encloses at least a portion of said light module housing.

48. An apparatus as set forth in claim 43 wherein said second portion of said light module housing is divided into first and second sections by a wall which blocks transmission of light between said first and second sections of said second portion of said light module housing, a first group of said light sources of said plurality of light sources being disposed in said first section of said second portion of said light module housing, a second group of said light sources of said plurality of light sources being disposed in said second section of said second portion of said light module housing.

49. An apparatus as set forth in claim 43 wherein said light module housing includes a panel which separates said first portion of said light module housing from said second portion of said light module housing, said light sources being disposed adjacent to a side of said panel which faces toward said push button.

50. An apparatus as set forth in claim 33 wherein said conductor is rigid and supports said first stationary switch contact in a spaced apart relationship with said second stationary switch contact.

51. An apparatus as set forth in claim 33 wherein said first stationary switch contact is disposed above said second stationary switch contact, said

conductor extends from said first stationary switch contact to a location beneath said second stationary switch contact, said body of insulating material being disposed in engagement with a portion of said conductor which is disposed beneath said second stationary contact, said conductor having a portion which extends from said first stationary switch contact past said first movable switch contact toward said second stationary switch contact and is free of engagement with insulating material.

52. An apparatus comprising a switch housing, a base which is at least partially enclosed by and is connected with said switch housing, a plurality of terminals which are connected with said base, a plurality of stationary and movable switch contacts connected with said terminals, a push button which is at least partially enclosed by said switch housing, an actuator link connected with said push button and said movable switch contacts, a plurality of light sources disposed in said switch housing, and a plurality of conductors which extend through said actuator link and are connected with said light sources, said actuator link being movable relative to said conductors to move said movable switch contacts relative to said stationary switch contacts upon movement of said push button relative to said switch housing, said push button being at least partially illuminated by light from said light sources upon energization of said light sources.

53. An apparatus as set forth in claim 52 wherein said stationary switch contacts are disposed in an array which extends around said conductors.

54. An apparatus as set forth in claim 52 wherein each of said conductors is connected with one of said terminals of said plurality of terminals.

55. An apparatus as set forth in claim 52 further including a body of insulating material disposed in engagement with one of said stationary contacts and one of said terminals.

56. An apparatus as set forth in claim 52 wherein push button and actuator link are movable together relative to said stationary switch contacts and said conductors to move said movable switch contacts under the influence of force transmitted from said push button.

57. An apparatus as set forth in claim 52 wherein each of said conductors is integrally formed as one piece with one of said switch terminals.

58. An apparatus as set forth in claim 52 further including a panel connected with said switch housing and having a first side facing toward said push button and a second side facing toward said actuator link, at least one of said light sources of said plurality of light sources being disposed adjacent to said first side of said panel.

59. An apparatus as set forth in claim 52 wherein electrical energy is conducted from said switch terminals through said conductors to energize said light sources.

60. An apparatus as set forth in claim 52 further including a spring disposed between said base and said push button to urge said push button in a direction away from said base, said spring extends through an opening said actuator link.

61. An apparatus as set forth in claim 52 further including a plurality of bus elements connected with said conductors and said light sources to conduct electrical energy between said bus elements and said light sources.

62. An apparatus as set forth in claim 52 further including an outer housing, said switch housing having a switch housing locating surface which engages a first locating surface on said outer housing to position said switch housing relative to said outer housing, a connector terminal mounting block which has a connector terminal mounting block locating surface which engages a second locating surface on said outer housing to position said connector terminal block relative to said outer housing, each of said connector terminals having an inner end portion which engages one of said terminals connected with said base and a second end portion which is connected with an electrical conductor.

63. An apparatus as set forth in claim 62 further including first and second openings formed in side walls of said outer housing, said switch housing having a switch housing retainer which snaps into the first opening in said side walls of said outer housing, said connector terminal mounting block having a connector terminal mounting block retainer which snaps into the second opening in said side walls of said outer housing.

64. An apparatus as set forth in claim 52 further including a light module housing which is at least partially enclosed by said switch housing, said light module housing having a first portion in which said movable switch contacts are at least partially disposed, said light module housing having a second portion, said plurality of light sources being disposed in said second portion of said light module housing.

65. An apparatus as set forth in claim 52 further including a printed circuit board having an opening, and a projection extending from said base into the opening in said printed circuit board, said projection being engagable with a discontinuity in said opening in said printed circuit board to orient said switch housing and said push button relative to said printed circuit board.

66. An apparatus as set forth in claim 65 further including an alternate action mechanism connected with said push button and said movable switch contacts, said alternate action mechanism being operable to maintain said movable switch contacts in an actuated condition in response to

a first manual actuation of said push button and to release said movable switch contacts in response to a second manual actuation of said push button, said alternate action mechanism being at least partially disposed in said projection.

67. An apparatus as set forth in claim 66 wherein said printed circuit board includes an array of sockets extending around the opening in said printed circuit board, each of said terminals of said plurality of terminals extends into one of said sockets in said array of sockets.

68. An apparatus comprising an outer housing, a switch assembly which is at least partially disposed in said outer housing, a connector terminal mounting block which is at least partially disposed in said outer housing, and a plurality of connector terminals which are at least partially disposed in said connector terminal block, said switch assembly includes a switch housing, a base which is at least partially enclosed by said switch housing, a plurality of switch terminals which are at least partially disposed in said base and are connected with said connector terminals, a plurality of movable and stationary switch contacts which are connected with said switch terminals, a push button, an actuator link connected with said push button and said movable switch contacts, said actuator link being enclosed by said switch housing, a panel which is at least partially enclosed by said switch housing, a plurality of light sources disposed adjacent to a side of said panel which faces toward

said push button, and a plurality of conductors which are connected with said switch terminals and extend through openings in said actuator link, said conductors being connected with said light sources, said actuator link being movable relative to said conductors to move said movable switch contacts relative to said stationary switch contacts, said push button being at least partially illuminated by light from said light sources upon energization of said light sources.

69. An apparatus as set forth in claim 68 further including an alternate action mechanism which is at least partially disposed adjacent to a side of said base opposite from said movable switch contacts, said alternate action mechanism is operable to maintain said movable switch contacts in an actuated condition in response to a first manual actuation of said push button and to release said movable switch contacts in response to a second manual actuation of said push button, said alternate action mechanism being at least partially disposed in an openings formed in said connector terminal mounting block.

70. An apparatus as set forth in claim 68 wherein said switch housing having a first locating surface which engages a first locating surface on said outer housing, said connector terminal mounting block having a second locating surface which engages a second locating surface on said outer housing.

71. An apparatus as set forth in claim 68 wherein said panel forms a portion of a light module housing which at least partially encloses said movable switch contacts, said panel being disposed between said movable switch contacts and said push button.

72. An apparatus as set forth in claim 68 wherein each of said conductors is integrally formed as one piece with one of said switch terminals.

73. An apparatus as set forth in claim 68 wherein said plurality of movable and stationary switch contacts includes first and second stationary switch contacts which are spaced apart and a first movable switch contact which is movable between a first position engaging said first stationary switch contact and a second position engaging said second stationary switch contact, a conductor connected with said first stationary switch contact and a first switch terminal of said plurality of switch terminals, and a body of insulating material disposed in engagement with said second stationary switch contact and with at least one of said conductor and said first switch terminal to enable said second stationary switch contact to be disposed close to said one of said conductor and first switch terminal.

~~74. An apparatus comprising a switch housing, a base which has a~~
first side and a second side opposite from said first side, said base being at least partially enclosed by and connected with said switch housing, a plurality of terminals which extend from said second side of said base, a plurality of

stationary and movable switch contacts connected with said first side of said base and connected with said terminals, a push button which is at least partially enclosed by said switch housing, an actuator link connected with said movable switch contacts, said actuator link being disposed between said first side of said base and said push button, a force transmitting member which is connected with said push button and with said actuator link, and an alternate action mechanism which is at least partially disposed adjacent to said second side of said base, said alternate action mechanism is operable to maintain said movable switch contacts in an actuated condition in response to a first manual actuation of said push button and to release said movable switch contacts in response to a second manual actuation of said push button, said alternate action mechanism being connected with said force transmitting member to enable force applied to said push button to be transmitted through said base to said alternate action mechanism.

75. An apparatus as set forth in claim 74 further including an outer housing, a connector terminal mounting block at least partially enclosed by said outer housing, and a plurality of connector terminals which are at least partially disposed in said connector terminal mounting block, each of said connector terminals being connected with one of said terminals which extend from said second side of said base.

76. An apparatus as set forth in claim 75 wherein said alternate action mechanism is at least partially disposed in an opening formed in said connector terminal mounting block.

77. An apparatus as set forth in claim 74 further including a plurality of conductors which extend through openings in said actuator link, said actuator link being movable relative to said conductors to move said movable switch contacts relative to said stationary switch contacts.

78. An apparatus as set forth in claim 77 further including a panel disposed between said actuator link and said push button, a plurality of light sources disposed on said panel and connected with said conductors, said light sources being energizable to at least partially illuminate said push button.

79. An apparatus as set forth in claim 74 further including a printed circuit board having an opening with an array of sockets extending around the opening, each of said terminals of said plurality of terminals extends into one of said sockets in said array of sockets, said alternate action mechanism extends into said opening in said printed board.

80. An apparatus as set forth in claim 74 further including a printed circuit board having an opening, said alternate action mechanism extends into the opening in said printed circuit board.